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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,664	12/13/2000	Carl John Sofield	SOFIELD 15342	4667

7590 05/18/2004

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 Alexandria, VA 22314

EXAMINER

CHIN, CHRISTOPHER L

ART UNIT	PAPER NUMBER
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1641

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/734,664

Applicant(s)

SOFIELD ET AL.

Examiner

Christopher L. Chin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 11-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-19 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/2/01</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I – claims 1-10 in the paper filed on 2/26/04 is acknowledged. The traversal is on the ground(s) that claim 19 is a linking claim and thus would require examination of both the method and apparatus claims. This is not found persuasive because claim 19 is not a linking claim as exemplified in its placement in a group separate from the apparatus of Group II – claims 11-18. Claim 19 does not link the method of elected Group I with the apparatus of Group II since it recites an apparatus distinct from that used in the method of Group I.

The requirement is still deemed proper and is therefore made FINAL.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

a.) The oath/declaration claims foreign priority to a United Kingdom document and a PCT application. The claim to foreign priority to both of these documents should be cited at the top of page 1 of the specification.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague because the preamble of the claim is not consistent with the body of the claim. The last part of the claim lacks a correlation step that relates the amount of deflection of the micro-cantilevers to the binding strength of the ligands for the receptors as recited in the preamble of the claim.

Claim 8 is vague and indefinite. The terms "moderate" in line 2 and "strongly" in line 4 are relative terms that are not defined. The metes and bounds of the claim cannot be determined.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Thundat et al.

Thundat et al (U.S. Patent 6,289,717) discloses a detection and quantitation method for antibody-antigen binding reactions which are capable of detecting low levels of chemical binding. A micro-cantilever sensor is also disclosed for performing assays to detect reactions involving biomolecules coupled to the micro-cantilever which results in a stress-induced bending of the cantilever. The sensor provides a cantilever with one of its surfaces coated with specific binding partners for an analyte (col. 2, lines 32-67). The disclosed sensor can have a plurality of micro-cantilever spring elements (3) provided that are attached to a sensor apparatus (1) (see Figure 1). Micro-cantilever spring element (3) can be 1 to 200 microns in length, 1 to 50 microns in width, and 0.1 to 3.0 microns in thickness (col. 3, lines 50-67). The bending of the micro-cantilever spring elements can be detected by known laser optical techniques (col. 5, lines 1-15, and col. 6, lines 46-67). The specific binding partner can be immobilized to the micro-cantilever element through an intermediate molecular bridge, such as poly-L-lysine (see claims 12 and 13).

Example 1 in col. 7 discloses a method for rapid screening of monoclonal antibodies that will bind to an antigen by coating the micro-cantilevers with the antigen. Serum derived from monoclonal producing hybridoma cell cultures are contacted with the micro-cantilevers. The antigen on the micro-cantilevers is considered to read on the receptor recited in the instant claims and the monoclonal antibodies from each of the

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cell cultures being screened is considered to read on the "plurality of different ligands" recited in the instant claims.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following U.S. Patents disclose various kinds of atomic force microscopes and apparatus with micro-cantilevers:


6,575,020; 6,016,686; 5,992,226; 5,958,701; 5,730,940; 5,519,212; 5,372,930; 5,166,516; and 5,047,633.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L. Chin whose telephone number is (571) 272-0815. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher L. Chin  
Primary Examiner  
Art Unit 1641

5/16/04